

REMARKS

In the Office Action, the drawings and specification were objected to and claims 1-84 were rejected. By this response, the specification and claims 1, 21, 36, 53, and 56 have been amended, and claims 4, 24, and 72-84 have been cancelled. No new matter has been added. Upon entry of the amendments, claims 1-3, 5-23, and 25-71 will remain pending in the present patent application. Reconsideration of the application in view of these amendments and in view of the remarks set forth below is respectfully requested.

Objection to Drawings

In the Office Action, the Examiner objected to Figure 1 because he believed reference characters 12, 18, 20, 24, 26, 28, 30, 32, and 34 were not labeled. A review of Figure 1 shows the reference characters are labeled in the upper portion of the figure. Applicants respectfully ask Examiner to review Figure 1 and remove objection.

Objection to the Specification

The specification was objected to due to certain informalities that have been addressed by the present amendments. Reconsideration and removal of the objection are requested.

Rejections in view of Art

Independent claims 1, 21, 36, and 53

In the Office Action, the Examiner rejected claims 1-3, 6-10, 21-23, 36-41, 43, 53-55, and 72-74 under U.S.C. § 102(e) as being anticipated by Heiserholt et al. (U.S. Patent No. 6,198,287 B1, hereafter "Heiserholt"). Of these, claims 1, 21, 36, 53, and 72 were independent. Claims 1, 21, 36, and 53 have been amended to include, in generally similar language, at least one safety loopback communications link between the master node and at least one slave node. Claim 72 has been canceled. Applicants have carefully reviewed Heiserholt and respectfully traverse these rejections.

The safety loopback communications link was originally in claims 4 and 24 which were rejected under 35 U.S.C. § 103(a). Thus, the particular rejection with respect to claims 4 and 24 will be the focus of the discussion below. The safety loopback communications link is particularly of interest in the claimed invention and is described, *inter alia*, in paragraph 72 of the application.

The present technique also may provide a hard-wire for one or more of the slave nodes, such as system critical slave nodes. Fig. 11 is a diagram illustrating an exemplary dual-conductor network 600 having dual-conductor linkages 602 (e.g., high and low CAN linkages) between a master node 604 and a plurality of slave nodes, such as slave nodes 606-614. ***As illustrated, a hard-wire linkage 616 extends between the master node 604 and the slave node 606 and a hard-wire linkage 618 extends between the master node 604 and the slave node 612. Similar hard-wire linkages***, or a single hard wire linkage, may extend between the master node 604 and all of the slave nodes 606-614. In operation, these hard-wire linkages, or safety loopback wires, may be used for critical messages, commands, or in situations where one or more system component is not operating properly. For example, the network 600 may toggle the signal to one of the hard-wire linkages for immediately notifying the master node 604 of a communications or device error. (emphasis added.)

Figure 11 of the application shows two distinct and dedicated lines 616 and 618, separate from the dual conductor linkage 602. The figure clearly illustrates the written disclosure showing two independent safety loopback communications links between the master node and two slave nodes. These distinct safety loopback communications links are not disclosed in Heiserholt.

Applicants believe the amended claim makes the 35 U.S.C. § 102(e) rejection moot. Heiserholt makes no mention of the safety loopback communication link between the master node and any of the slave nodes for the magnetic resonance apparatus disclosed. The description specifically list a single bus originating from the can master 42. *See e.g.*, column 3, lines 52-54. Furthermore, Fig. 2 shows a single bus line in conjunction with the can master 42.

In the Office Action, the Examiner rejected dependent claims 4 and 24 under 35 U.S.C. § 103(a) as being anticipated by Heiserholt in view of Dittmar et al. (U.S. Patent No. 5,784,547 A, hereafter "Dittmar"). The claims were also rejected under U.S.C. § 103(a) as being anticipated by Heiserholt in view of Novakovich et al. (U.S. Patent No. 5,404,465, hereafter "Novakovich").

Because the independent claims now include similar recitations, these rejections are discussed here inasmuch as they relate to the independent claims as amended. Applicants have carefully reviewed Heiserholt, Dittmar, and Novakovich, and respectfully traverse these rejections. Applicants believe none of the references teaches the safety loopback communications links recited in the pending claims.

Dittmar specifically teaches a double-bus architecture or a redundant bus configuration. *See*, column 4, line 16-18. It further shows the purpose of the redundant bus in Fig. 3 by illustrating the failure of the primary bus. It does not teach a separate and dedicated line to any of the slave nodes. Instead it shows two public bus lines between *all* slave nodes. The purpose of the redundant bus is to handle process data if a fault occurs in the primary bus. *See*, column 7, lines 49-56.

Novakovich teaches the same configuration only more specifically relating to trainline communication. It teaches a primary train bus and a back up train bus. *See*, column 1, 57-60. Figure 3 is a flow chart demonstrating the functionality of the back up train bus to restore communications if the primary bus fails.

As discussed, *supra*, the current invention makes use of a safety loopback communications link dedicated to certain individual slave nodes. This is structurally and functionally distinguishable from a redundant bus. The safety loopback communications link is structurally distinguishable because the dedicated safety loopback is not physically run to every slave node as is required by a primary and redundant bus configuration.

Such safety loopback communications links are only passed between the master node and the respective slave node, thereby reducing its exposure to multiple fault points. Functionally, the safety loopback communications link is also distinguishable because the link is strictly dedicated to the connected slave node.

Independent Claim 56

In the Office Action, the Examiner rejected claims 56-60 and 62 under 35 U.S.C. § 103(a) as being anticipated by Heiserholt in view of Funahashi et al. (Patent Application 2002/0081039, hereafter "Funahashi"). Of these, claim 56 is the only independent claim and has been amended. Applicants have amended claim 56 to include communicating between the master and at least one slave node via at least one safety loopback communications link. Applicants have carefully reviewed both Heiserholt and Funahashi, and respectfully traverse the rejections.

As discussed, *supra*, the above recitation is supported in the disclosure, and is illustrated in Figure 11. Applicants believe the amended claim makes the rejection 35 U.S.C. § 103(a) moot. The Examiner correctly commented that the only relevant teaching of Funahashi is generating the medical diagnostic image. The reference shows a schematic of a network only to illustrate the relationship among the related hardware and software. *See, e.g.*, Figure 1. Funahashi clearly only shows one bus line and is silent as to a second communications link between the master and any of the slave nodes.

A *prima facie* case of obviousness under 35 U.S.C. § 103 requires *all* of the claimed elements be found in the references. Because neither Heiserholt nor Funahashi teach the safety loopback communications link, *all* of the elements are not found in the combination. It is for this reason Applicants respectfully request the amended claim be allowed.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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Patrick S. Yoder
Reg. No. 37,479
FLETCHER YODER
P.O. Box 692289
Houston, TX 77269-2289
(281) 970-4545